

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Donald E. Abrino et al.
Serial No. : 10/726,086
Filed : December 2, 2003
For : REFRACTORY LINING FOR
METALLURGICAL VESSEL
Confirmation No. : Unknown
Examiner : Unknown
Art Unit : Unknown
Attorney Docket : NR7322US.CON

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AFFIDAVIT UNDER 37 C.F.R. 1.132

1. The undersigned, Roger Poeta, is a Sales Representative of North American Refractories Co.

2. The undersigned has nineteen (19) years of experience in the refractories industry (hereinafter "the industry").

3. ISG Sparrows Point has been a customer of North American Refractories Co. for more than twenty (20) years.

4. The bottoms of steel ladles have been historically constructed *solely* of bricks that were individually laid within the ladle by skilled bricklayers.

5. It was recognized in the industry, that molten metal could penetrate the refractory brick lining and contact the metal shell of the ladle if the bricks of an all-brick ladle bottom are not kept in compression.

6. If one or more bricks were to dislodge from a refractory lining having an all-brick ladle bottom (i.e., a “float-out”), the metal shell of the ladle may become exposed to the molten metal, resulting in a catastrophic failure of the ladle shell, known as a “break-out.”

7. Past practice when laying all-brick ladle bottoms was to keep the bricks in compression by driving wedges or ramming a refractory material into the space between bricks and the metal shell or backup lining of the ladle.

8. More recently, to avoid the problems associated with prior all-brick ladle bottoms, castable refractory materials were substituted for the bricks. Cast ladle bottoms were recognized to offer certain advantages over the practice of laying brick shapes in the bottom of ladles. These advantages include cost savings due to reduced time required of skilled labor to insure proper installation of bricks in ladle bottoms, and improved ladle bottom life due to recent developments in castable materials with high resistance to impact and erosion.

9. The above-mentioned cost savings and improvements in castable materials lead the industry to move away from the use of all-brick ladle bottoms to cast ladle bottoms, wherein the bottom of ladles are lined with a castable refractory material.

10. In December, 2000, North American Refractories Co. proposed to ISG Sparrows Point the use of a preformed cast ladle bottom having a brick impact pad embedded therein, as illustrated in the attached drawing.

11. The undersigned was not aware of the proposed structure prior to the development of this structure by North American Refractories Co.

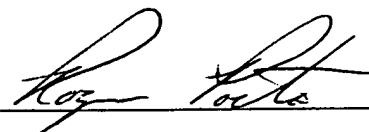
12. The proposed structure was met with much skepticism by ISG Sparrows Point, because of a belief that the refractory bricks in the proposed structure were likely to "float out" of the pad, thereby creating the aforementioned catastrophic "break out" situation, as had been observed with prior brick ladle bottoms.

13. ISG Sparrows Point manifested their skepticism with a request that North American Refractories Co., assume all responsibility for any consequences resulting from test runs of the present invention, before allowing the applicant to test the present invention.

14. Only when shown that refractory bricks forming the impact pad would not "float out" from the cast slab, was the proposed structure accepted and did ISG Sparrows Point, appreciate and embrace the advantages of the present invention, i.e., the use of superior refractory brick, together with castable material.

15. ISG Sparrows Point continues to use the proposed structure with success.

Date: 1/8/04

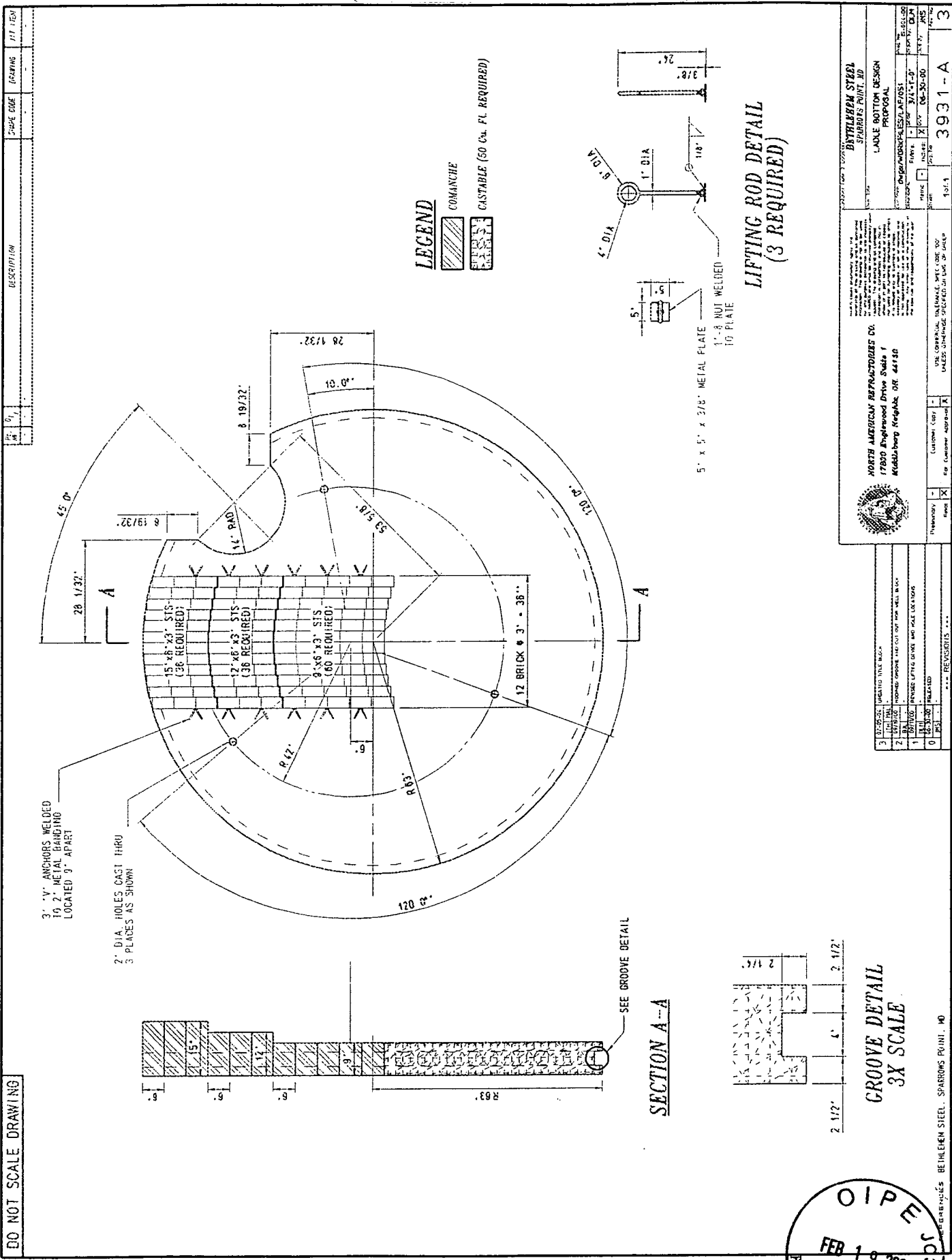
Signature: 

Name: Roger Poeta

Title: Senior Sales representative

Company: North American Refractories Co.

DO NOT SCALE DRAWING

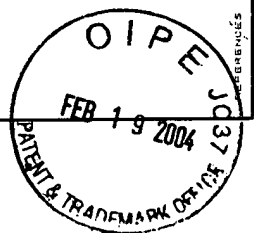


LIFTING ROD DETAIL
(3 REQUIRED)

SECTION A-A

GROOVE DETAIL
3X SCALE

BETHLEHEM STEEL SPARROWS POINT, MO	
LADDER BOTTOM DESIGN PROPOSAL	
CUSTOMER: NORTH AMERICAN REFRACATORIES CO. 17800 Englewood Drive Suite 1 St. Louis, MO 63140	
DATE: 04-30-00	BY: JMS
CHKD: JMS	APP: JMS
10/11	3931-A
UNLESS OTHERWISE SPECIFIED, USE AISC 100	





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AFFIDAVIT UNDER 37 C.F.R. 1.132

1. The undersigned, Charles William Patterson, II, was a Sales Representative of North American Refractories Co.

2. The undersigned has six (6) years of experience in the refractories industry (hereinafter "the industry").

3. ISG Sparrows Point has been a customer of North American Refractories Co. for more than twenty (20) years.

4. The bottoms of steel ladles have been historically constructed *solely* of bricks that were individually laid within the ladle by skilled bricklayers.

5. It was recognized in the industry, that molten metal could penetrate the refractory brick lining and contact the metal shell of the ladle if the bricks of an all-brick ladle bottom were not kept in compression.

6. If one or more bricks were to dislodge from a refractory lining having an all-brick ladle bottom (i.e., a “float-out”), the metal shell of the ladle could become exposed to the molten metal, resulting in a catastrophic failure of the ladle shell, known as a “break-out.”

7. Past practice when laying all-brick ladle bottoms was to keep the bricks in compression by driving wedges or ramming a refractory material into the space between the bricks and the metal shell or backup lining of the ladle.

8. More recently, to avoid the problems associated with prior all-brick ladle bottoms, castable refractory materials were substituted for the bricks. Cast ladle bottoms were recognized to offer certain advantages over the practice of laying brick shapes in the bottom of ladles. These advantages included cost savings due to reduced time required of skilled labor to insure proper installation of bricks in ladle bottoms, and improved ladle bottom life due to developments in castable materials with high resistance to impact and erosion.

9. The above-mentioned cost savings and improvements in castable materials lead the industry to move away from the use of all-brick ladle bottoms to cast ladle bottoms, wherein the bottom of ladles are lined with a castable refractory material.

10. In December 2000, North American Refractories Co. proposed to ISG Sparrows Point the use of a preformed cast ladle bottom having a brick impact pad inbedded therein, as illustrated in the attached drawing.

11. The undersigned was not aware of the proposed structure prior to the development of this structure by North American Refractories Co.

12. The proposed structure was met with much skepticism by ISG Sparrows Point, because of a belief that the refractory bricks in the proposed structure were likely to "float out" of the pad, thereby creating the aforementioned catastrophic "break out" situation, as had been observed with prior brick ladle bottoms.

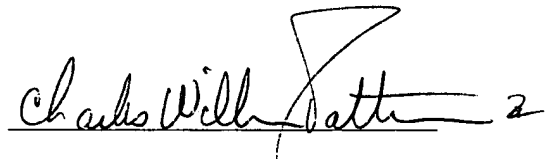
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14. Only when shown that refractory bricks forming the impact pad would not "float out" from the cast slab, was the proposed structure accepted and did ISG Sparrows Point, appreciate and embrace the advantages of the present invention, i.e., the use of superior refractory brick, together with castable material.

15. ISG Sparrows Point continues to use the proposed structure with success.

Date: February 11, 2004

Signature:



Name: Charles William Patterson, II

Title: Contract Professional

Company: Employed by North American
Refractories Company

**ATTACHMENT TO AFFIDAVIT
OF CHARLES WILLIAM
PATTERSON, II**

